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Project title :

Consequences of urbanization on bird demography and immune defenses

Keywords :

urban ecology, ecological immunology, great tit

Summary (150 words at the maximum):

Many animal and plant species have successfully colonized (and still colonize) urban habitats. However, ecological factors (both biotic and abiotic) experienced by organisms living in urban habitat differ from those in natural environments. Consequences on organisms may occur at different levels of individual phenotype, from physiology to behavior, and most components of demography may be impacted.

This project aims to explore how breeding great tits deal with urban environment by comparing populations settled in Dijon and in a forest located 40 km apart. Components of reproductive output and nestling growth will be assessed by monitoring breeding attempts, and parasite prevalence and intensity will be assessed on nestlings and adults. Literature provides contrasted results on host-parasite interactions in urban contexts, and we may expect lower prevalence and intensities as well as higher ones in urban habitat than in forest. Finally, as immune defences are crucial functions allowing host to deal with parasites, we plan to quantify levels of circulating immune markers in nestlings.

Relevant literature (up to two references):

Shochat, E., Warren, P.S. & Faeth, S.H. (2006) From patterns to emerging processes in mechanistic urban ecology. *Trends in Ecology and Evolution* 21: 186

Grimm N.B. et al (2008) Global change and the ecology of cities. *Science* 319:756–60.

Techniques involved in the project:

bird reproduction monitoring, morphological measurements, parasite identification, blood sampling, biochemical analysis.

Desired skills and abilities:

Ability and skills for fieldwork